VIRGINIA GAME FISH TAGGING PROGRAM ANNUAL REPORT

2005

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Virginia Game Fish Tagging Program

Annual Report

2005

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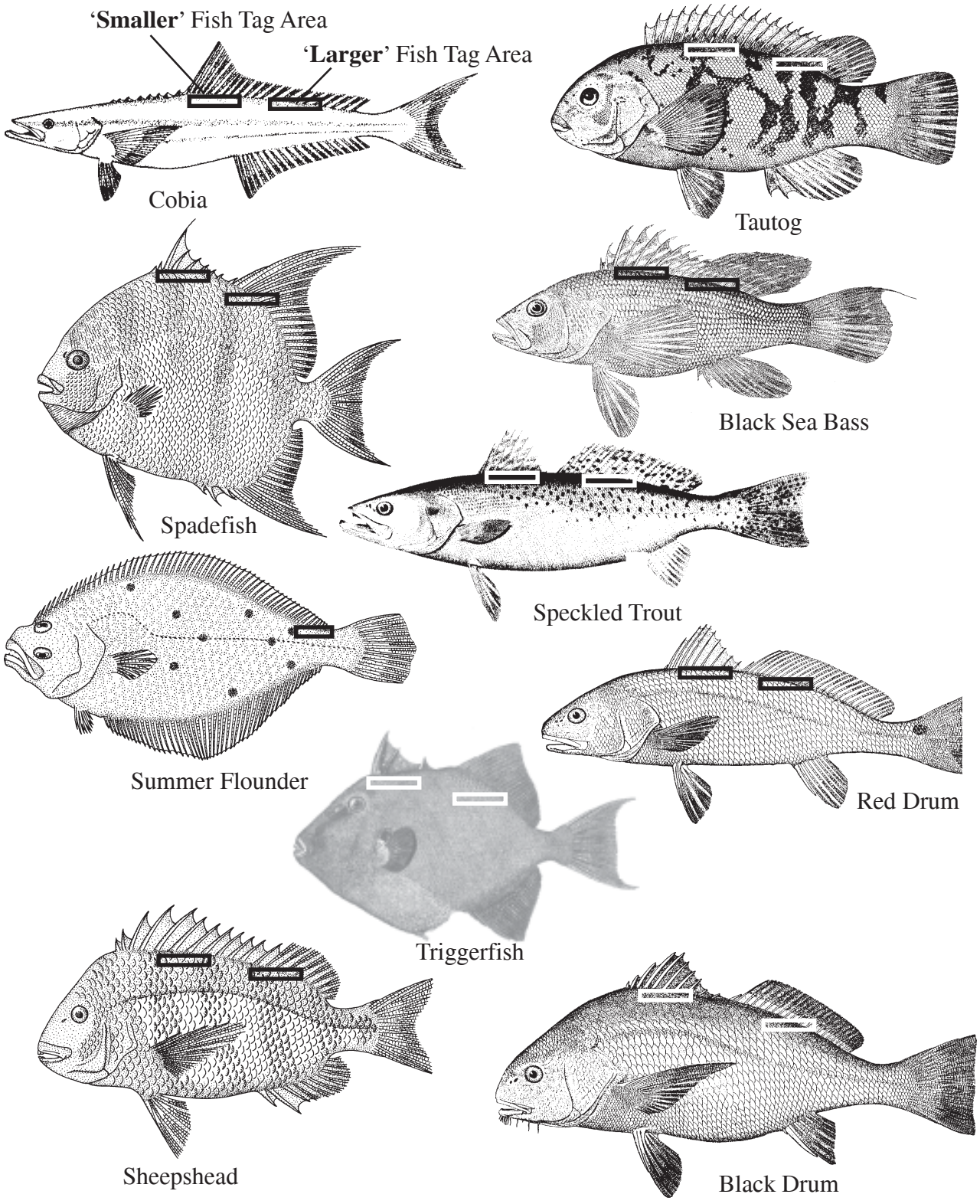
Target Species

Virginia Game Fish Tagging Program



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Introduction

The Virginia Game Fish Tagging Program (VGFTP), initiated in 1995, coordinates tagging and a tag-recapture fish database generated through contributed efforts of a dedicated corps of trained marine anglers. Through 2005, the program's database includes nearly 88,000 records of tag-released fish and approximately 8,300 recaptures.

Primary funding support for the tagging program is from the Virginia Marine Resources Commission (VMRC) using the state's Saltwater Recreational Fishing License Funds. Annual funding proposals are submitted to VMRC's Recreational Fishing Advisory Board for peer-review, public comment, and recommendations for funding. The RFAB recommendation is then voted upon by VMRC Commissioners.

The project is operated cooperatively by Claude Bain, Director of the Virginia Saltwater Fishing Tournament (under VMRC), and Jon Lucy, Recreation Specialist, VIMS Marine Advisory Program. Significant matching funds are provided by the Virginia Institute of Marine Science of the College of William and Mary. There is also additional administrative support provided by the Virginia Sea Grant Program, a federal funding source (National Oceanic and Atmospheric Administration-NOAA) of major significance to VIMS as part of the broader Virginia Sea Grant Marine Advisory Program.

Only select fish (currently 10 species) are targeted, species important to the state's marine recreational fisheries but for which there is little or no hard data available on their seasonal movements in and out of Virginia waters, nor their preferred habitat areas while using bay, coastal or offshore waters. The program also can update and expand upon earlier tagging studies conducted in Virginia waters, i.e., the case for summer flounder. For species tagged under ongoing tagging projects, care is taken not to duplicate such work (and dilute tagging effort away from other species), i.e., striped bass are not tagged.

Target species for 2002-2005 were black drum, black sea bass, cobia, flounder, gray triggerfish, red drum, sheepshead, spadefish, speckled trout (spotted seatrout), and tautog. A list of the species and their scientific names follows this section.

Summer flounder replaced weakfish in 2000. This change proved valuable since unexpected habitat preferences and site fidelity patterns have been documented for 1-2 year old flounder inside Chesapeake Bay and for certain ocean inlets on the Eastern Shore.

In recent years the program has maintained its team of trained angler taggers at approximately 150-180 individuals. During 2004-2005 taggers' numbers approached 200, about the maximum level desired. This level of participation keeps the program manageable while producing useful data for the species targeted.

Target Species 2002-2005

Black Drum	(*Pogonias cromis*)
Black Sea Bass	(*Centropristis striata*)
Cobia	(*Rachycentron canadum*)
Flounder (fluke)	(*Paralichthys dentatus*)
Gray Triggerfish	(*Balistes capriscus*)
Red Drum	(*Sciaenops ocellatus*)
Sheepshead	(*Archosargus probatocephalus*)
Spadefish	(*Chaetodipterus faber*)
Speckled Trout	(*Cynoscion nebulosus*)
Tautog	(*Tautoga onitis*)

Accomplishments and Database Use in 2005

The tagging program works towards accomplishing several broad objectives:

- Involving the angling community directly in collecting movement and area use data on species supporting major marine recreational fisheries in Virginia and the mid-Atlantic region.

- Working with trained anglers to collect tag-recapture data on key recreationally targeted fish in Virginia waters which will fill gaps in information needed by researchers, fishery managers, and in fishery management plans.

    - Data needs are primarily for defining local movement and habitat associations for species within a year, and over multiple years.

    - For improved management of fisheries, it is also important to have data on species' seasonal migration patterns, including fish migration corridors (physical locations, temporal parameters, types of habitat used, and consistency year to year.

    - Chesapeake Bay and Virginia barrier island waters provide major seasonal feeding areas, and sometimes even spawning areas, for certain important recreationally targeted species. Collecting data to better understand and manage healthy fish populations in Virginia also ultimately contributes to improved and sustainable recreational fisheries in both nearby states and over broader regions.

- The tagging program also works in concert with the saltwater angling community to collect and analyze tag-recapture data, data which provide convincing evidence that thoughtful, common sense catch and release fishing practices work.

- Sharing recapture results with the angling community, results derived from fish tagged by a broad cross-section of anglers, helps expand angler understanding of the payback which can result from complying with fishery regulations. The program, focusing often on undersized fish, documents that by carefully releasing non-legal fish (or being more conservation-minded and releasing some legal fish not needed for consumption) anglers can help restore fisheries for better angling in the future. Tag-recapture data also helps support research showing that many marine fish, when caught on appropriate tackle and handled carefully, have relatively high survival rates when released shortly after capture.

Major Activities and Benefits - 2005

1) See Appendix C: "Angling for Answers", Spring 2005 issue of the VA Sea Grant Marine Resource Bulletin; explains uses of program data by researchers and fishery managers, particularly in reference to the tautog fishery.

2) Four tagging training workshops, completed during winter, added approximately 25 new anglers to the program; the workshops also updated existing taggers on recapture results and promoted discussions, i.e., data submission problems, tagging data recording mistakes, and ways to reduce such problems.

3) Program coordinators gave presentations on aspects of the tagging program to a mix of scientific and recreational fisheries industry audiences. Such presentations are important for obtaining peer acceptance of the program's methods and data management practices. Interpretation of program results can also be improved, more finely tuned, or even occasionally found to be somewhat "off track. Presentations were made at: the Fourth World Recreational Fishing Conference (June 2005, Norway), American Fisheries Society Annual Meeting's Catch and Release Fishing Symposium (Sept. 2005, Alaska), and Estuarine Research Federation National Conference (Oct. 2005, Norfolk, VA).

4) Educational programs on tagging, including its role in fisheries conservation, were provided to fishing clubs and the Virginia Outdoor Writers Association; hands-on demonstrations were conducted at several "Kid's Fishing Clinics" in Newport News (pier fishing) and Virginia Beach (boat fishing).

5) As one of five authors, J. Lucy contributed to a presentation made to the Atlantic States Marine fisheries Commission (ASMFC) Tautog Technical Committee; the purpose was support VMRC and VIMS arguments that the southern area fishery (NJ-VA) should be managed differently from that in the northern area (NY-RI). The senior author, Troy Tuckey (Ph.D student, VIMS), also gave a similar presentation at the Ichthyology and Herpetology annual conference in May 2005; presentation title was "Evaluating Local vs Regional Management: Tautog (*Tautoga onitis)* in Virginia." In addition, a manuscript reviewing some of these same issues was submitted in November 2005 to the American Fisheries Society's monthly periodical, Fisheries (it is still in review). The manuscript

title was “Evaluating Localized vs Large-scale Management: A Study of Tautog (*Tautoga onitis)* in Virginia.”

6) Tautog fin clip samples collected largely by tagger Ken Neill were important in a coast-wide 2004 genetic study of tautog by a University of Rhode Island PhD student. Virginia tautog were found significantly distinctive from tautog in more northern sampling areas while all northern area fish samples (from NY, RI, MA) were non-distinguishable from one another. In late 2005 the study results were submitted to a scientific journal.

7) We began a more concentrated effort to continue carrying out tag retention studies on speckled trout. Tagging approximately 155 speckled trout in three distinctive areas resulted in 84 double-tagged fish. The field project compared standard Hallprint T-bar tags against a Hallprint internal anchor tag (sheath and anchor portion both vinyl over mono-filament). The internal anchor tag has been demonstrated to have high retention in various species. In the case of double-tagged trout, through the end of 2005 both tags were being equally reported in recaptured fish. This indicates good retention of the T-bar tag in the species for times at large of several weeks to months. Recaptures from fish having longer times at large will be compared to those for shorter periods to further evaluate the T-bar tag.

8) The program continued receiving recapture data from black sea bass double-tagged in October 2004 offshore in the areas of the Light Tower Reef and Triangle Reef. Early recaptures indicated the program’s Hallprint T-bar tag (and a NOAA Fisheries internal anchor tag) remained in nearly all fish recaptured. More recapture data during 2005 (about 20 recaptures) showed some apparent “loss” of the T-bar tags. The data is still being reviewed. The results will assist NOAA Fisheries in evaluating New Jersey’s tagging component of the black sea bass tagging project in which only T-bar tags were used. Insight is also being gained by program coordinators regarding tag retention of the T-bar tag in deeper water, structure-oriented species, i.e., black sea bass and tautog.

Top Tagger and Recapture Awards

Tagging effort produced just over 10,250 tag-released fish records during 2005, about 1,800 fewer records than in 2004. However, recapture records during the year totaled 955, only about 40 fewer than in 2004.

Trained taggers are honored each year with handsome plaques, one award going to the tagger having the most recaptures reported during the year. Awards are also presented to anglers producing the most tagged fish in each target species category. Ed Shepherd of Yorktown, received the Most Recaptured Fish Award for 2005. Ed tagged over 2,300 flounder plus good numbers of red drum (yearling or puppy drum) and speckled trout, all in the lower York River (Gloucester Point Fishing Pier, Yorktown Beach, and Yorktown Power Plant warm-water canal rock jetties).

Tagger awards by species for years 2003-2005 are shown in Table 1. For most tagged

fish overall (all species combined), the award went to Gil Rigo in 2003, Scott Vinson in 2004, and Ed Shepherd in 2005. Extensive, consistent tagging effort during recent years on flounder has resulted in unprecedented information on site fidelity and movement patterns of younger flounder. While Gil Rigo and Scott Vinson won the top flounder tagging awards in 2003 and 2004, each tagging over 1,000 fish, Ed Shepherd more than doubled their totals, tagging over 2,300 flounder in 2005.

Dennis Cline continued to make major contributions on large red drum and Wayne Seymour on yearling (puppy) drum. Rob Holtz tagged the most sheepshead. David Barnhart tagged the most cobia and speckled trout during the year while Robert Collins tagged the most black sea bass and gray triggerfish. Bill Knapp won the tautog award. Gill Wilson tagged the top number of spadefish.

A more comprehensive look at individual tagging effort is presented in Table 2 (A and B). Anglers tagging 25 or more fish during the year receive a Conservation Certificate noting their accomplishments. Table 2A alphabetically list 51 recipients of the award for 2005, about the same as in 2004.

Examining angler tagging effort (numbers of fish tagged in descending order, Table 2B) illustrates that approximately 30 trained taggers accounted for the majority of tagged fish during 2005. Ed Shepherd was also largely responsible for extensive single and multiple recapture data for flounder at the Gloucester Point Fishing Pier (see later figure). Scott Vinson also again contributed greatly to flounder tag-recapture data. During 2005 Vinson was largely responsible for significant single and multiple flounder recapture records at the Hampton Roads Bridge Tunnel. Anglers winning top species tagging awards for the year often tagged 200-500 total fish. Another 12 anglers tagged approximately 100-200 fish, and 17 anglers tagged 50-100 fish.

Top numbers of recaptures reported during the year also win anglers special recognition (Table 3, A and B). Anglers having five or more recaptures of their tagged fish reported during the year are listed alphabetically (3A). Due to their extraordinary flounder tagging efforts, Ed Shepherd and Scott Vinson each accomplished 200 or more recaptures for the year Table 3B). Four anglers had 38-56 recaptures, and the tagging effort of 10 anglers resulted in 10-26 recaptures. The highest recaptures were largely for three species, i.e., flounder, black sea bass, and tautog.

Program Organization and Management

Program protocol and management are detailed in the 2004 Annual Report, available online at http://www.vims.edu/adv/recreation/index.html. In addition, an example of the program's "Basic Tagging Instructions and Tips is shown in Appendix A. See Appendix B for an example of another tagging training handout, "Tagging Stick Instructions—Stainless Steel Dart Tag."

Tagging Equipment

Tagging equipment is shown in Figure 1. Tagging guns and Hallprint T-Bar tags are used for fish generally 10-27 inches in length. The Hallprint stainless steel dart tag (with tagging applicator) is used for large black and red drum, as well as large cobia.

Tagging and Recapture Results

A summary of the program's tagging and recapture results by species is shown in Figures 2 and 3 as well as in Table 4. Due to continuing strong year classes and significant tagging effort at certain fishing piers and bridge-tunnel complexes, flounder continues to dominate numbers of tagged fish. Red drum, speckled trout, and tautog also received major tagging effort. Considerable variation occurs year to year in both tagged and recaptured fish by species. Tagging output is always dependent upon the numbers of taggers in the program, the weather during a given year (does it allow consistent fishing for certain species, especially at offshore sites), and variations in the abundance of target species.

Speckled trout tag numbers were somewhat "artificially high" in 2005 due to the concerted effort to double-tag fish to evaluate T-bar tag retention. However, a strong showing of year-old fish (10-13 inches TL) and older year classes (16-22 inch fish) during September through November in Lynnhaven and Rudee Inlets also helped push up the numbers.

Figure 4 best illustrates why tagging programs must concentrate tagging effort on key species. Graphing totals of tagged fish by species (1995-2005) versus the total numbers of recaptures demonstrates the degree of tagging effort required to obtain useful recapture results. At best researchers strive to obtain 5-10% recapture reporting rates in tagging studies. While a few species such as speckled trout fall below this level, most target species reach or exceed it.

Table 4 shows tag and recapture results by species for 2003-2005 and for the duration of the program (1995-2005). Overall, the cumulative recapture rate for all target species combined has continued to remain around 9.6%. This overall rate is naturally influenced by the large number of flounder tagged in recent years, the species having a consistent recapture rate of 9%.

Variations in cumulative recapture rates by species are expected, as seen in Table 4 (2003-2005) and Fig. 5 (1998-2005). Typically species having affinity for structure (natural or man-made) can show higher recapture rates. They are more consistently available to anglers and thereby receive more angling pressure. Therefore black sea bass, flounder, and tautog account for the most recaptures during 2003-2005, the latter two species experiencing a 15-16% cumulative recapture rate.

However, red drum continues to show good recapture rates (around 11%), as does cobia (12-13%) and spadefish (around 10%). Cobia recaptures are particularly good given the relatively small number of fish tagged each year. Sheepshead recaptures were disappointing in 2005 (dropping to 6.7 %) given the tagging efforts by Rob Holtz, Bill Knapp, Robert Collins, and David Cohn. Gray triggerfish with only 23 fish tagged in 2005, continue to show the highest recapture rate (26%). In spite of the extra tagging effort directed at speckled trout, the species continues to exhibit the program's lowest recapture reporting rate (3%). However, while speckled trout return rates remain low, the quality of data obtained warrants continued tagging effort. With the fishery at the northern edge of its range, Virginia speckled trout exhibit greater geographical movement in fall and spring than elsewhere throughout the southeast and Gulf coasts.

Brief Highlights by Species

See Appendix D tables by species; organized within species by Tagging Location, then in order of date tagged; when the report is put online at VIMS website, opportunities will be explored to broaden some content, possibly adding new figures and more information.

Black Drum

Only four drum recaptures occurred. A 45.5 in. TL fish tagged in May 2003 was recaptured May 2005 (740 dal) in the mouth of the Honga River (Maryand, bayside Eastern Shore). As seen in past years, a juvenile black drum (7.5 in.) tagged October 2004 in Lynnhaven Inlet was recaptured only 23 days later at Avon Fishing Pier in North Carolina.

Black Sea Bass

As in recent years, some long-term recaptures occurred. For example a sea bass, tagged in May 2002 at an offshore wreck was recaptured November 2005 on an unidentified Virginia offshore wreck after 1,286 days at large (3.5 years).

Site fidelity was also observed at offshore wrecks and at the Chesapeake Bay Bridge Tunnel. Eight double recaptures of sea bass occurred at the Bay Bridge Tunnel, being at large typically only a few days up to a week or more. However a few such fish were recaptured twice over periods up to 2-5 weeks. Not as much tagging occurred at the 4A Buoy Drydock in 2005 compared to previous years, therefore recaptures were very low at the site.

Results of the black sea bass double-tagging study for evaluating retention of the program's T-bar tag were previously summarized. This cooperative project with NOAA Fisheries will not likely produce more data given the project's funding was not extended after 2005.

Cobia

With the cobia fishery again not showing an especially strong year, only four cobia recaptures occurred. Three were of conventionally tagged fish. Two of these were tagged during June-July

2005 and were essentially in the initial area tagged when recaptured 2-4 weeks post tagging. A fish tagged in July 2004 at Latimer Shoal (Fig. 6) was recaptured back in the bay again in June 2005, caught at Inner Middle Ground Shoal (331 dal)

One recapture was of a non-conventionally handled cobia. This adult cobia had been captured and provided to VIMS for brood stock for hatchery spawning and juvenile cobia growth rate evaluation. When hatchery tank problems required the fish be released, it was tagged (42 in. TL) at the hatchery and released off the VIMS beach just above the Coleman Bridge in the York River (Fig. 6). This fish was recaptured back in the bay in September 2005 (at the Hump off Back River) after 1,174 dal (3.2 years).

Flounder

Extraordinary flounder tagging efforts during 2003-2005 again produced valuable returns. In chart figures showing site fidelity and flounder movement, 2005 data are highlighted "red" in the data boxes on the charts. Within-year site fidelity patterns (Fig. 7) occurred once again at many structure sites (fishing piers and bridge-tunnel complexes). The Gloucester Point Fishing Pier (262 recaptures) and Hampton Roads Bridge Tunnel (139 recaptures) showed both short (several weeks) and long-term (10 or more weeks) fidelity. Primarily 10-16 inch TL flounder were tagged.

Examples of single and multiple flounder recaptures at the Gloucester Point Pier are shown in Figure 8 (A and B). The majority of single recaptures occurred over periods with fish at larger for several days up to three weeks. Two double recaptured fish were at large a combination of just over 100 days (Fig. 8B).

A similar pattern was observed at the Hampton Roads Bridge Tunnel (Fig. 9, A and B). Single recapture periods at large were spread out over a longer period, ranging from a week up to three months (Fig. 9A). Compared to the fishing pier, there were greater numbers of multiple recaptures at the tunnel (Fig. 9B). Eleven such fish were documented with most at large for 60-100 days. There was one triple recapture of a founder, the three events occurring over a 100 day period.

Longer term (year to year) site fidelity patterns were again documented at favorite flounder fishing/tagging sites (Fig. 10). The most significant trends were observed in recaptures at the Chincoteague-Wallops Island area (6 returns) and the Chesapeake Bay Bridge Tunnel (7 returns). The site fidelity patterns observed in 2005 were from flounder tagged during 2004 at the respective sites.

Not all recaptures in 2005 of flounder at large from one year to the next demonstrated the site fidelity pattern just described. For example, of four flounder (12-16 in. TL) tagged at the Hampton Roads Bridge Tunnel (HRBT) in 2004 (April 25 and May 16-27) then recaptured in 2005, only one recapture occurred at the initial tagging HRBT site (in June 2005). The remaining three fish were recaptured in 2005 at: Lynnhaven Inlet (May), off Point Lookout in the Maryland bay (July), and at Ship Shoal Inlet (in May) outside the bay near the southern end of the barrier islands. Therefore there also can be significant examples of "exceptions to the rule" for any

general tag-recapture pattern. Although a stated pattern is observed to occur with a good degree of consistency over multiple years, there still may be major variations of that pattern also occurring in the local fish population.

Coastal movement patterns of flounder were again similar to those documented since 2000-2001 (Fig. 11). Examples occurred where flounder tagged in Virginia waters in 2001, 2003, and 2004 were recaptured at locations ranging from Long Island, New York and New Jersey beaches/inlets south to offshore areas adjacent to Chincoteague, Virginia Beach, North Carolina Outer Banks, and in North Carolina inlets and sounds. During 2005, the most southward migration of flounder observed was a fish tagged at The Cell (July 2003) and recaptured at the Avon, NC Fishing Pier in November 2005 (848 dal/2.3 years).

Finally, here is an example of coastal movement of a bay-tagged flounder. A flounder (14.5 inch TL) tagged at the Yorktown Beach (York River) in June 2004 was recaptured during May 2005 in Raritan Bay, NJ (339 dal). More such examples are listed in Appendix D tables.

Gray Triggerfish

Compared to 2003-2004, a very low level of tagging occurred on gray triggerfish during 2005 (23 fish). Therefore only four fish were recaptured during the year. Recaptures came from the Chesapeake Bay Bridge Tunnel (CBBT) and Tiger Wreck areas, the same areas where the fish were tagged in July and September 2005.

However, a double recapture occurred around the Third Island of the CBBT. A 15 inch fish tagged July 30 at the Third Island was first recaptured again at the Island on August 14 after only 5 days at large (dal). Released again with its tag, the fish was recaptured once more on November 19 on a wreck off the CBBT Third Island. Having been at large for an additional 97 days, total time at large was 112 days.

Red Drum

Numbers for both tagged and recaptured fish were down significantly in 2005. However there were some very significant returns.

Yearling drum (puppy drum) tagged at both the York River “Hot Ditch” (Yorktown Power Station) and the Elizabeth River “Hot Ditch” showed some examples of eventual dispersal to North Carolina waters. A drum tagged at the York River site in December 2002 was recaptured in the Carova, NC surf in October 2005. Having been at large 1,022 days (2.8 years) since over-wintering at least one year in the warm water area of the plant’s discharge canal, the angler catching the fish reported it to be “fat.” The fish had grown from 15.5 inches TL in winter 2002 to 34.5 inches by fall 2005. A yearling drum tagged at the Elizabeth River Hot Ditch area in February 2003 was recaptured in April 2005 in the surf at Portsmouth Island, NC (793 dal).

Adult red drum tagging effort continued at a good pace in 2004 and 2005. For the first time since 1995 an adult red (45 inches TL) tagged in Virginia waters (May 2003 off Ship Shoal Island) was recaptured in North Carolina (Fig. 12). This record finally fills the major gap in what is

thought to be a somewhat cyclic migration of big red drum from North Carolina waters to Virginia in spring and early summer with the fish then moving back south in the fall. This fish was recaptured in June 2005 about 2.5 miles off Frisco, NC and released. The tag was retained for making the recapture report.

Later in the fall, two additional large drum, tagged in September and October at the Little Island Fishing Pier at Sandbridge, were likewise recaptured in North Carolina waters. While one had moved only slightly south to Corolla/Duck, the other moved further, being captured at the Avon Fishing Pier (Fig. 12). Changing over to the larger stainless steel dart tag from Hallprint appears to have made a big improvement in recaptures. Essentially all large red drum recaptures during the past three years have been fish carrying the larger tag.

Sheepshead

There was only a minor decline in numbers of tagged sheepshead in 2005 (188 fish) compared to 2004 (266 fish). However, only 3 recaptures were reported, all fish tagged in August 2005 at the CBBT Second Island. No movement was observed in these fish, and times at large ranged only from 9-31 days.

Spadefish

Tagging of spadefish declined somewhat in 2005 compared to 2003-2004. Likewise fewer recaptures were reported (24 fish). A fish tagged at Chesapeake Light Tower in May 2004 was recaptured inside the bay in August 2005. Captured in a pound net off Hooper's Island, Maryland, the fish was at large 453 days. More curious was the case of a sheepshead tagged in June 2003 at Wolf Trap Light House. The fish was recaptured again at the light house in June 2005, having grown from 9.5 inches to 16.5 inches TL (732 dal). Most 2005 recaptures occurred at the initial tagging site within 2-4 weeks after tagging.

Speckled Trout

Speckled trout recapture data continue to be significant in that many fish tagged in the lower bay, as well as in Lynnhaven and Rudee Inlets, are now being documented to move significant distances during fall to North Carolina waters (Fig. 13). Even more interesting is some fish are moving over 100-235 miles (approximate straight-line distances) along the Outer Bank beaches and into the sounds.

Approximate calculations of minimum net movement per day indicate that fish are capable of covering such distances sometimes in less than a week's time, while others make the trip

in at least 30-60 days, sometimes more (Table 5). This translates into minimum net movement from Virginia bay and Rudee Inlet tagging sites of 1-8 miles per day.

One tag-recapture record seems quite extraordinary. A speckled trout tagged in the Sandbridge surf on October 22, 2004, was recaptured inside Pamlico Sound on the western shore near Swanquarter on October 27, 2004. Covering the estimated straight-line distance of 128 miles

between the tag and recapture locations in only five days, its net minimum movement was over 20 miles per day (Table 5).

A speckled trout tagged in November 2005 at the York River Hot Ditch was recaptured in Pamlico Sound at Swanquarter (the western sound shore) after only 19 days. The fish had to cover a minimum straight-line distance along lower bay shores and along coastal beaches of over 160 miles.

Double tagging of speckled trout has resulted in recaptures of such fish as far south as the Newport River near Beaufort, NC (having moved from Lynnhaven Inlet in 56 days). A double-tagged trout tagged in Rudee Inlet in November 2005 was recaptured in the Corolla surf only six days later. Double-tagged fish to date have all shown retention of both the T-bar and internal anchor tags.

Tautog

While numbers of tagged tautog in 2005 declined significantly from 2004 levels, recaptures actually increased slightly (128 records). Most recaptures were fish either tagged in the bay or at offshore structure sites during 2003-2005. One tautog tagged in August 2002 at the Winthrop Wreck off Virginia Beach was recaptured at the Chesapeake Light Tower in January 2005 (893 dal/2.4 years).

Tautog continue to show strong site fidelity to initial Virginia tagging sites and are not showing evidence of migrating significantly northward. Only on a few occasions (3 fish) have recaptures of tautog tagged in the bay, or at sites offshore Virginia, been recaptured to the north (Ocean City Inlet and one fish near the mouth of Delaware Bay).

Numerous double-recapture records were again obtained during 2005, some showing the same fish captured twice at its tagging site over approximately 300-600 days. The majority of recaptures during 2005 were for fish 10-15 inches TL which were at large 200 to 350 plus days.

The tagging data is helping VMRC and VIMS support a position that the Virginia tautog fishery merits consideration of possibly being managed differently from stocks off New Jersey and more northward. In the northern management area, tautog are still in an over-fished status, and the states are taking significant cuts in landing quotas to help rebuild the fishery. To date, such is not the case for the Virginia fishery. However, the Virginia fishery warrants more study. Because of the life history of the species, the fishery could rather quickly be over-fished.

Table 1. Virginia Game Fish Tagging Program Annual Tagging Awards
2003 – 2005

Category	2003		2004		2005	
Most Recaptured Fish	Gil Rigo	240	Lee Hughes	138	Ed Shepherd	255
Most Tagged Fish	Gil Rigo	1124	Scott Vinson	1289	Ed Shepherd	2551
Most Tagged Black Drum	Marty Bull	16	Jim Jenrette	18	Dennis Cline	27
Most Tagged Black Sea Bass	Buddy Noland	148	Robert Collins	151	Robert Collins	143
Most Tagged Cobia	Gil Rigo	4	Jim Jenrette	6	David Barnhart	26
Most Tagged Flounder	Gil Rigo	1092	Scott Vinson	1040	Ed Shepherd	2351
Most Tagged Gray Triggerfish	Robert Collins	14	Robert Collins	105	Robert Collins	15
Most Tagged Red Drum	Wayne Seymour	519	Dennis Cline	68	Wayne Seymour	115
Most Tagged Sheepshead	Rick Guyot	4	Scott Vinson	228	Robert Holtz	59
Most Tagged Spadefish	Stanley Gold	38	Bob Lee	78	Gill Wilson	48
Most Tagged Speckled Trout	Robert Holts	94	Ed Shepherd	328	David Barnhart	138
Most Tagged Tautog	Robert Collins	68	Ken Neill, III	206	Bill Knapp	142

Table 2a. Anglers Awarded Conservation Certificates for Tagging 25 or More Fish During 2005

Tagger	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerf.	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog	Total
David Barnhart	1	2	26	1	1	36	0	0	138	0	205
Rudy Bosher	0	0	0	37	0	0	0	0	0	0	37
Tracy Boyd	1	107	0	33	1	0	0	1	2	0	145
Doug Casady	22	0	0	18	0	51	0	3	19	0	113
Dennis Cline	27	0	0	0	0	44	0	0	0	0	71
David Cohn	0	2	2	39	2	2	25	4	0	110	186
Robert W. Collins	11	143	0	72	15	29	34	0	22	74	400
Wayne Collins	0	18	0	7	0	0	0	0	0	0	25
Elmer Diggs	0	23	0	18	1	2	0	0	0	20	64
Jay Duell	0	7	0	95	0	8	0	0	43	2	155
Jimmy Duell	2	4	0	73	0	6	0	0	0	1	86
Dorothy Elliott	0	0	0	123	0	0	0	0	0	0	123
Rick Guyot	10	1	0	93	0	40	5	0	29	2	180
Mike Handforth	0	8	0	174	0	0	0	0	0	0	182
Marvin Hardisty	0	0	0	0	0	6	0	0	75	0	81
Dick Harris	0	3	0	22	0	2	0	0	0	0	27
Gerald Head	0	0	0	18	0	13	0	0	52	0	83
Tommy Heinz	0	0	0	57	0	0	0	0	2	0	59
Charles Hester	0	7	0	37	0	0	0	0	0	0	44
Robert S. Holtz	9	1	8	54	0	16	59	6	30	72	255
Jim Jenrette	12	0	4	2	0	9	1	0	0	8	36
Charlie Johnson	2	0	0	11	0	0	0	0	16	0	29
James Johnston	14	0	0	0	0	29	0	0	0	0	43
John (Tim) Kidwell	0	0	0	49	0	7	0	0	0	3	59
Bill Knapp	6	17	2	176	1	42	50	14	59	142	509
Ed Lawrence	1	0	0	9	0	16	0	0	20	0	46
Bob Lee	4	2	0	0	0	1	0	20	0	27	54
Jim Leiffer	0	0	0	178	0	0	0	0	0	19	197
Don Miller	2	1	6	10	0	31	0	0	53	0	103
Ken Neill, III	1	1	0	0	0	1	0	0	0	80	83
Buddy Noland	0	92	0	0	0	0	0	0	0	0	92
Bart Paxton	0	1	0	35	1	0	0	5	3	7	52
Bill Perron	4	16	0	46	0	24	1	1	51	4	146
Mike Perron	0	61	0	130	1	2	1	3	3	58	259
Dale Poe	0	0	5	192	0	20	0	0	0	0	25
Wayne Pollard	0	0	0	0	0	0	0	0	30	0	30
Jim Robinson	4	10	0	36	0	0	0	0	0	1	51
Robert Savage	7	27	12	0	0	15	1	10	0	65	137
Brett Schoeberl	0	2	0	50	0	0	0	0	0	0	52
Wayne Seymour	1	0	0	0	0	115	0	0	82	0	198
Ed Shepherd	4	8	0	2351	0	106	0	0	82	0	2551
Larry Slawson	1	2	0	35	0	12	0	0	2	6	58
Sonny Spiers	0	3	0	63	0	0	0	0	0	5	71
Scott Vinson	0	0	1	1716	0	0	0	0	0	0	1717
Lee Wallace	0	11	0	0	0	2	0	0	0	18	31
Doug Wehner	7	1	0	17	0	28	0	0	0	0	53
Gil Wilson	0	0	0	0	0	0	0	48	19	0	67
Michael Winn	0	26	0	2	0	0	0	0	1	0	29
Steve Wray	12	0	0	11	0	1	2	0	8	7	41

Table 2b. Anglers Awarded Conservation Certificates for Tagging 25 or More Fish During 2005

Tagger	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerf.	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog	Total
Ed Shepherd	4	8	0	2351	0	106	0	0	82	0	2551
Scott Vinson	0	0	1	1716	0	0	0	0	0	0	1717
Bill Knapp	6	17	2	176	1	42	50	14	59	142	509
Robert W. Collins	11	143	0	72	15	29	34	0	22	74	400
Mike Perron	0	61	0	130	1	2	1	3	3	58	259
Robert S. Holtz	9	1	8	54	0	16	59	6	30	72	255
David Barnhart	1	2	26	1	1	36	0	0	138	0	205
Jim Leiffer	0	0	0	178	0	0	0	0	0	21	199
Wayne Seymour	1	0	0	0	0	115	0	0	82	0	198
David Cohn	0	2	2	39	2	2	25	4	0	110	186
Mike Handforth	0	8	0	174	0	0	0	0	0	0	182
Rick Guyot	10	1	0	93	0	40	5	0	29	2	180
Jay Duell	0	7	0	95	0	8	0	0	43	2	155
Bill Perron	4	16	0	46	0	24	1	1	51	4	146
Tracy Boyd	1	107	0	33	1	0	0	1	2	0	145
Robert Savage	7	27	12	0	0	15	1	10	0	65	137
Dorothy Elliott	0	0	0	123	0	0	0	0	0	0	123
Doug Casady	22	0	0	18	0	51	0	3	19	0	113
Don Miller	2	1	6	10	0	33	0	0	59	0	111
Buddy Noland	0	92	0	0	0	0	0	0	0	0	92
Jimmy Duell	2	4	0	73	0	6	0	0	0	1	86
Gerald Head	0	0	0	18	0	13	0	0	52	0	83
Ken Neill, III	1	1	0	0	0	1	0	0	0	80	83
Marvin Hardisty	0	0	0	0	0	6	0	0	75	0	81
Dennis Cline	27	0	0	0	0	44	0	0	0	0	71
Sonny Spiers	0	3	0	63	0	0	0	0	0	5	71
Gil Wilson	0	0	0	0	0	0	0	48	19	0	67
Elmer Diggs	0	23	0	18	1	2	0	0	0	20	64
Tommy Heinz	0	0	0	57	0	0	0	0	2	0	59
John (Tim) Kidwell	0	0	0	49	0	7	0	0	0	3	59
Larry Slawson	1	2	0	35	0	12	0	0	2	6	58
Bob Lee	4	2	0	0	0	1	0	20	0	27	54
Doug Wehner	7	1	0	17	0	28	0	0	0	0	53
Bart Paxton	0	1	0	35	1	0	0	5	3	7	52
Brett Schoeberl	0	2	0	50	0	0	0	0	0	0	52
Jim Robinson	4	10	0	36	0	0	0	0	0	1	51
Ed Lawrence	1	0	0	9	0	16	0	0	20	0	46
Charles Hester	0	7	0	37	0	0	0	0	0	0	44
James Johnston	14	0	0	0	0	29	0	0	0	0	43
Steve Wray	12	0	0	11	0	1	2	0	8	7	41
Danny Noland	0	35	0	1	0	0	0	0	0	2	38
Rudy Bosher	0	0	0	37	0	0	0	0	0	0	37
Jim Jenrette	12	0	4	2	0	9	1	0	0	8	36
Lee Wallace	0	11	0	0	0	2	0	0	0	18	31
Wayne Pollard	0	0	0	0	0	0	0	0	30	0	30
Charlie Johnson	2	0	0	11	0	0	0	0	16	0	29
Michael Winn	0	26	0	2	0	0	0	0	1	0	29
Dick Harris	0	3	0	22	0	2	0	0	0	0	27
Wayne Collins	0	18	0	7	0	0	0	0	0	0	25
Dale Poe	0	0	5	0	0	20	0	0	0	0	25

Table 3a. Anglers Having 5 or More Fish Recaptured During 2005

Tagger	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerf.	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog	Total
Tracy Boyd	0	54	0	2	0	0	0	0	0	0	56
David Cohn	0	2	0	1	1	0	1	0	0	6	11
Robert W. Collins	0	8	0	5	1	2	0	0	1	8	25
Jay Duell	0	2	0	12	0	0	0	0	2	0	16
Dorothy Elliott	0	0	0	5	0	0	0	0	0	0	5
Rick Guyot	0	0	0	17	0	4	0	0	3	2	26
Mike Handforth	0	1	0	14	0	0	0	0	0	0	15
Robert S. Holtz	0	0	1	1	0	4	1	0	6	9	22
Tim Kidwell	0	0	0	6	0	0	0	0	0	0	6
Bill Knapp	0	6	0	23	0	6	1	2	1	12	51
Bob Lee	1	0	0	0	0	0	0	2	0	3	6
Jim Leiffer	0	0	0	11	0	0	0	0	0	2	13
Don Miller	0	0	0	1	0	3	0	0	1	0	5
Ken Neill, III	0	0	0	0	0	0	0	0	0	43	43
Bill Perron	0	3	0	4	0	3	0	1	1	1	13
Mike Perron	0	5	0	14	2	0	0	0	0	17	38
Rich Pickens	0	0	0	5	0	0	0	0	0	0	5
Jim Robinson	0	0	0	1	0	0	0	0	0	5	6
Bret Schoeberl	0	0	0	5	0	0	0	0	0	0	5
Ed Shepherd	0	1	0	246	0	3	0	0	5	0	255
Larry Slawson	0	0	0	8	0	0	0	0	0	0	8
Scott Vinson	0	0	0	200	0	0	0	0	0	0	200
Doug Wehner	0	0	0	3	0	3	0	0	0	0	6
Gil Wilson	0	0	0	0	0	0	0	10	0	0	10

Table 3b. Anglers Having 5 or More Fish Recaptured During 2005

Tagger	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerf.	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog	Total
Ed Shepherd	0	1	0	246	0	3	0	0	5	0	255
Scott Vinson	0	0	0	200	0	0	0	0	0	0	200
Tracy Boyd	0	54	0	2	0	0	0	0	0	0	56
Bill Knapp	0	6	0	23	0	6	1	2	1	12	51
Ken Neill, III	0	0	0	0	0	0	0	0	0	43	43
Mike Perron	0	5	0	14	2	0	0	0	0	17	38
Rick Guyot	0	0	0	17	0	4	0	0	3	2	26
Robert W. Collins	0	8	0	5	1	2	0	0	1	8	25
Robert S. Holtz	0	0	1	1	0	4	1	0	6	9	22
Jay Duell	0	2	0	12	0	0	0	0	2	0	16
Mike Handforth	0	1	0	14	0	0	0	0	0	0	15
Jim Leiffer	0	0	0	11	0	0	0	0	0	2	13
Bill Perron	0	3	0	4	0	3	0	1	1	1	13
David Cohn	0	2	0	1	1	0	1	0	0	6	11
Gil Wilson	0	0	0	0	0	0	0	10	0	0	10
Larry Slawson	0	0	0	8	0	0	0	0	0	0	8
Tim Kidwell	0	0	0	6	0	0	0	0	0	0	6
Bob Lee	1	0	0	0	0	0	0	2	0	3	6
Jim Robinson	0	0	0	1	0	0	0	0	0	5	6
Doug Wehner	0	0	0	3	0	3	0	0	0	0	6
Dorothy Elliott	0	0	0	5	0	0	0	0	0	0	5
Don Miller	0	0	0	1	0	3	0	0	1	0	5
Rich Pickens	0	0	0	5	0	0	0	0	0	0	5
Bret Schoeberl	0	0	0	5	0	0	0	0	0	0	5

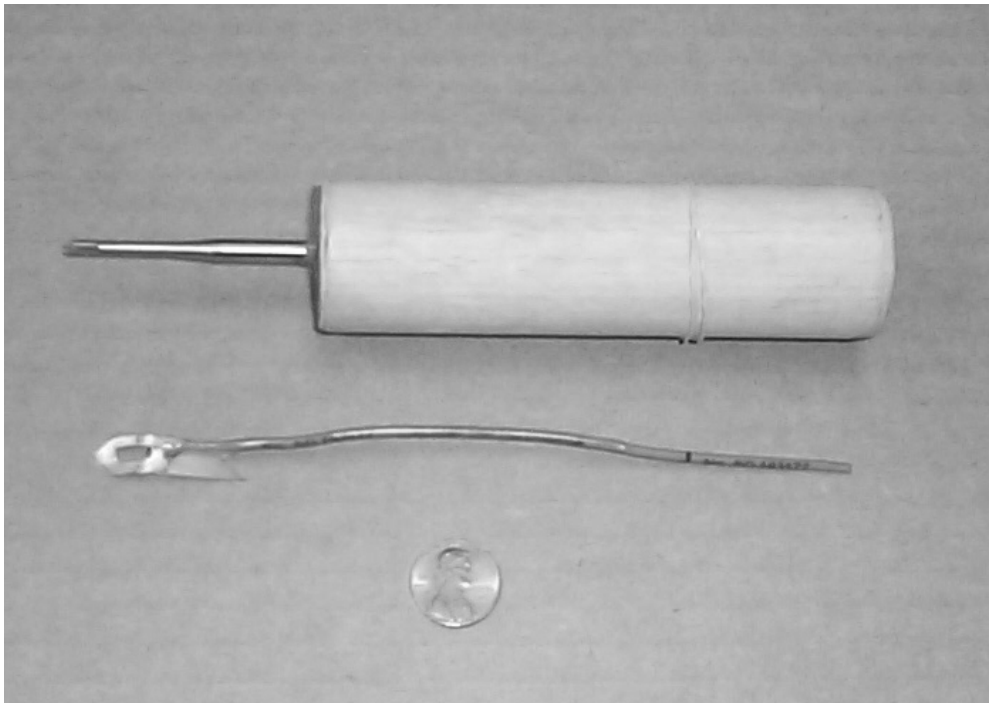
Table 4. Tagged-Recaptured Fish and Overall Recapture Rates by Species (2003-2005)

	No. Recaptured			No. Recaptured	No. Tagged			No. Tagged	Overall Recapture Rate		
Species	**2003**	**2004**	**2005**	**1995-2005**	**2003**	**2004**	**2005**	**1995-2005**	**2003**	**2004**	**2005**
Black Drum	2	5	4	93	176	231	206	1,954	5.5%	5.1%	4.7%
Black Sea Bass	100	68	98	1,991	917	947	682	13,264	15.1%	15.0%	15.0%
Cobia	6	6	4	111	14	186	96	878	16.9%	13.7%	12.6%
Flounder	396	643	618	2,767	3,673	7,248	6,156	30,241	9.1%	8.9%	9.1%
Gray Triggerfish	12	42	4	83	29	193	23	315	37.4%	27.1%	26.3%
Gray Trout	0	0	0	66	0	0	0	9,160	0.7%	0.7%	0.7%
Red Drum	343	22	42	1,087	2,251	504	785	9,884	11.8%	11.4%	11.0%
Sheepshead	0	27	3	33	6	266	188	489	8.6%	10.0%	6.7%
Spadefish	27	43	24	402	237	285	162	3,888	9.7%	10.1%	10.3%
Speckled Trout	9	26	30	192	352	976	1,128	7,017	2.8%	2.8%	2.7%
Tautog	66	110	128	1,538	471	1,190	827	9,800	16.7%	15.7%	15.7%
Grand Total	**961**	**992**	**955**	**8,363**	**8,126**	**12,026**	**10,253**	**86,890**	**9.6%**	**9.9%**	**9.6%**

Table 5. Long Distance Speckled Trout Movement (VA – NC 2004-2005)

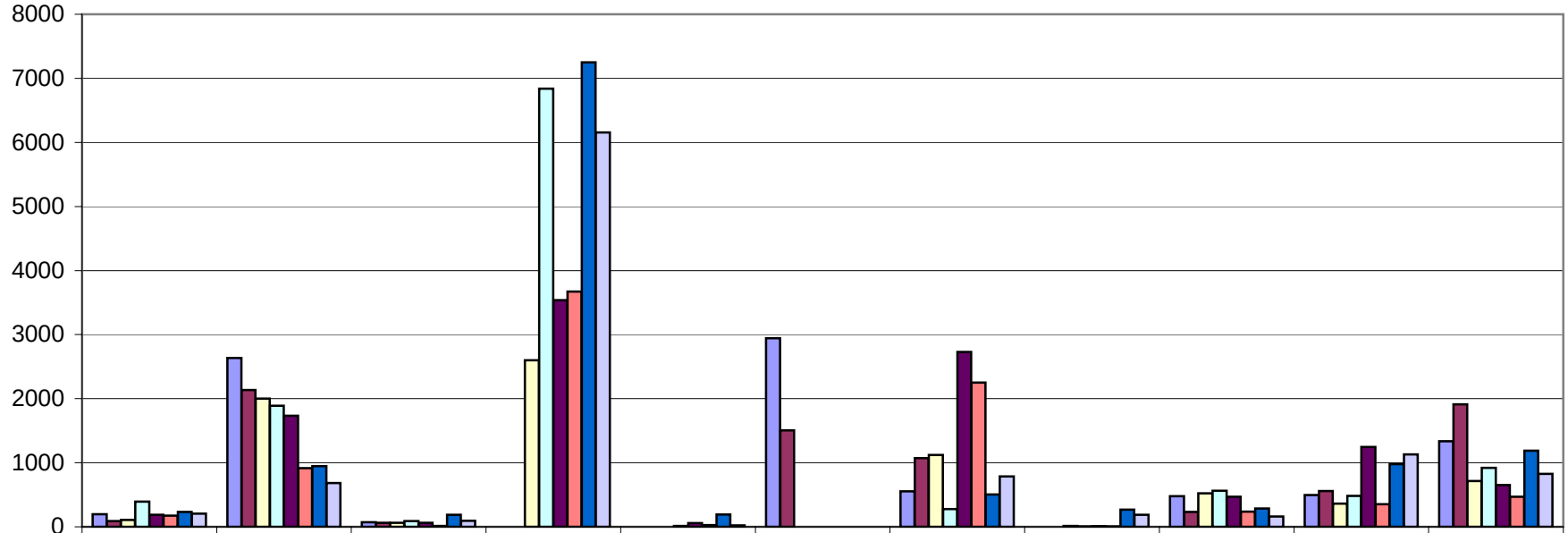
Tag Date	Virginia Tagging Location	Tagger	Recap Date	Recapture Location	Days to Recapture	Approximate Straight Line Distance (miles)	Estimated Minimum Net Movement/Day (miles)
9/22/04	Lynnhaven (Broad Bay)	R. Fortier	11/30/04	Bear Linlet, NC Surf (below Atlantic Beach)	69	233	4
9/22/04	Poquoson Flats	J. Young	1/23/04	Atlantic Beach, NC (Iron Steamer Pier)	62	235	4
10/01/04	Piankatank River	C. Newsome	11/21/04	Rodanthe, NC Surf	51	150	3
10/13/04	Lynnhaven River	R. Fortier	10/31/04	Pamlico Sound, NC (Swanquarter)	18	152	8
10/17/04	Rudee Inlet	R. Guyot	10/26/04	Oregon Inlet, NC	9	75	8
10/22/04	Sandbridge Surf	D. Wehner	10/27/04	Pamlico Sound, NC (Juniper Bay, Swanquarter)	5	128	26
11/06/04	Piankatank River	M. Hardisty	1/20/05	Cape Point, NC	75	175	2
09/17/04	Poquoson Flats	J. Young	2/22/05	Frisco, NC Surf	158	150	1
10/29/05	Lynnhaven Inlet	B. Knapp	11/5/05	Kill Dvil Hills, NC Surf	7	73	10
11/02/05	Rudee Inlet	J. Lucy	11/8/05	Corolla, NC Surf	6	30	5
10/16/05	Rudee Inlet	D. Miller	11/21/05	Bogue Sound, Beaufort Causeway, NC	36	185	5
10/16/05	Rudee Inlet	D. Barnhart	12/3/05	Deer Creek, Bogue Sound, NC	48	185	4
10/20/05	Lynnhaven Inlet	J. Lucy	12/15/05	Newport River (Core Creek), Beaufort, NC	56	185	3

Figure 1. Tagging gun and T-Bar tags and stainless steel dart tag and applicator
(Note: coin for scale – 0.75 inches diameter)



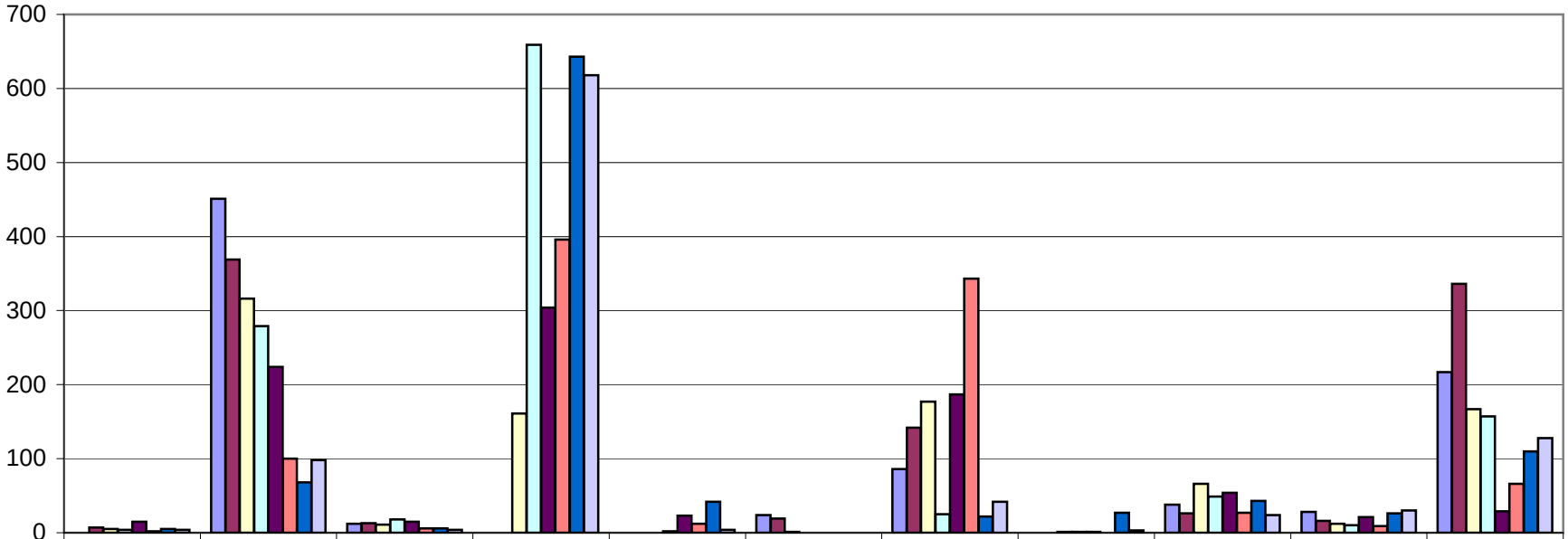
See Appendix A and B for Tagging Instructions.

Figure 2 - Number of Tagged Fish
1998-2005



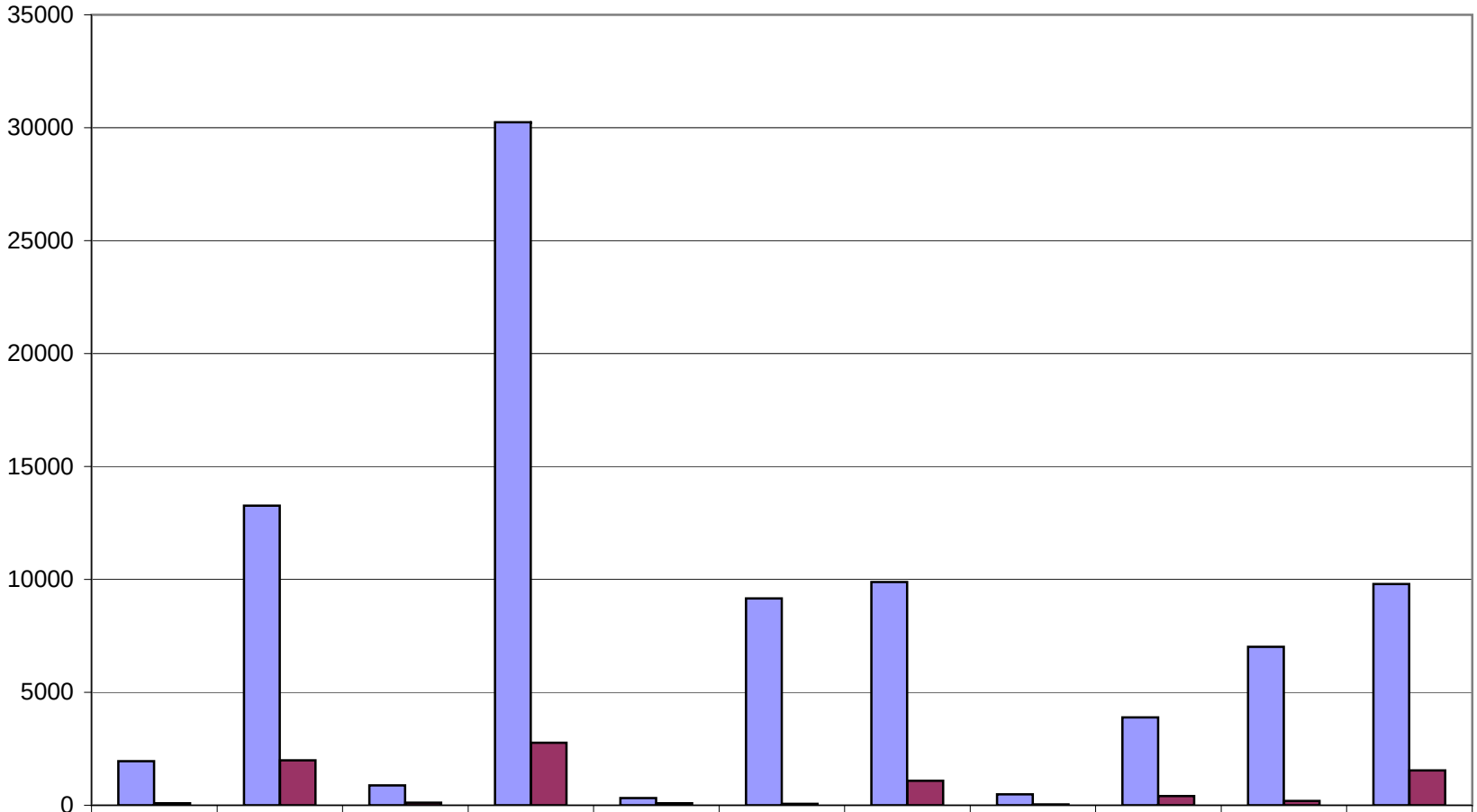
	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerfish	Gray Trout	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog
1998	195	2635	72	0	0	2944	553	0	476	494	1336
1999	89	2135	62	0	0	1504	1073	0	233	558	1912
2000	109	2003	64	2599	0	1	1123	12	522	361	714
2001	394	1888	88	6839	14	0	275	6	565	483	920
2002	188	1732	63	3537	56	0	2730	10	470	1248	652
2003	176	917	14	3673	29	0	2251	6	237	352	471
2004	231	947	186	7248	193	0	504	266	285	976	1190
2005	206	682	96	6156	23	0	785	188	162	1128	827

Figure 3 - Number of Recaptured Fish
1998-2005



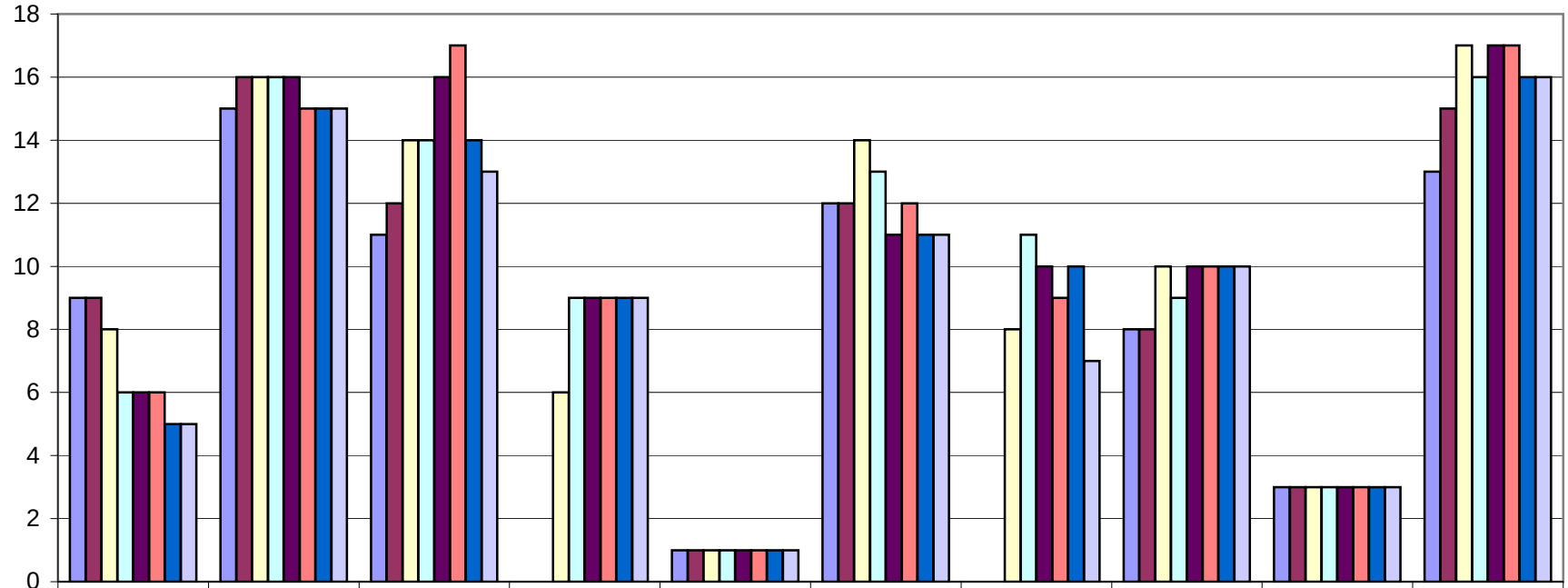
	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerfish	Gray Trout	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog
1998	0	451	12	0	0	24	86	0	38	28	217
1999	7	369	13	0	0	19	142	0	26	16	336
2000	5	316	11	161	0	1	177	1	66	12	167
2001	4	279	18	659	2	0	25	1	49	10	157
2002	15	224	15	304	23	0	187	1	54	21	29
2003	2	100	6	396	12	0	343	0	27	9	66
2004	5	68	6	643	42	0	22	27	43	26	110
2005	4	98	4	618	4	0	42	3	24	30	128

Figure 4 - Total Fish Tagged and Recaptured by Species (1995-2005)



	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Triggerfish	Gray Trout	Red Drum	Sheeps-head	Spadefish	Speckled Trout	Tautog
TG1995-2005	1954	13264	878	30241	315	9160	9884	489	3888	7017	9800
RCP1995-2005	93	1991	111	2767	83	66	1087	33	402	192	1538

Figure 5 - Cumulative Tagged Fish Recapture Rates (%)



	Black Drum	Black Sea Bass	Cobia	Flounder	Gray Trout	Red Drum	Sheepshead	Spadefish	Speckled Trout	Tautog
1998	9	15	11	0	1	12	0	8	3	13
1999	9	16	12	0	1	12	0	8	3	15
2000	8	16	14	6	1	14	8	10	3	17
2001	6	16	14	9	1	13	11	9	3	16
2002	6	16	16	9	1	11	10	10	3	17
2003	6	15	17	9	1	12	9	10	3	17
2004	5	15	14	9	1	11	10	10	3	16
2005	5	15	13	9	1	11	7	10	3	16

Figure 6. Cobia Recaptures: Chesapeake Bay Site Fidelity and Coastal Movement; Examples primarily 1999-2005; Records Listed in Order

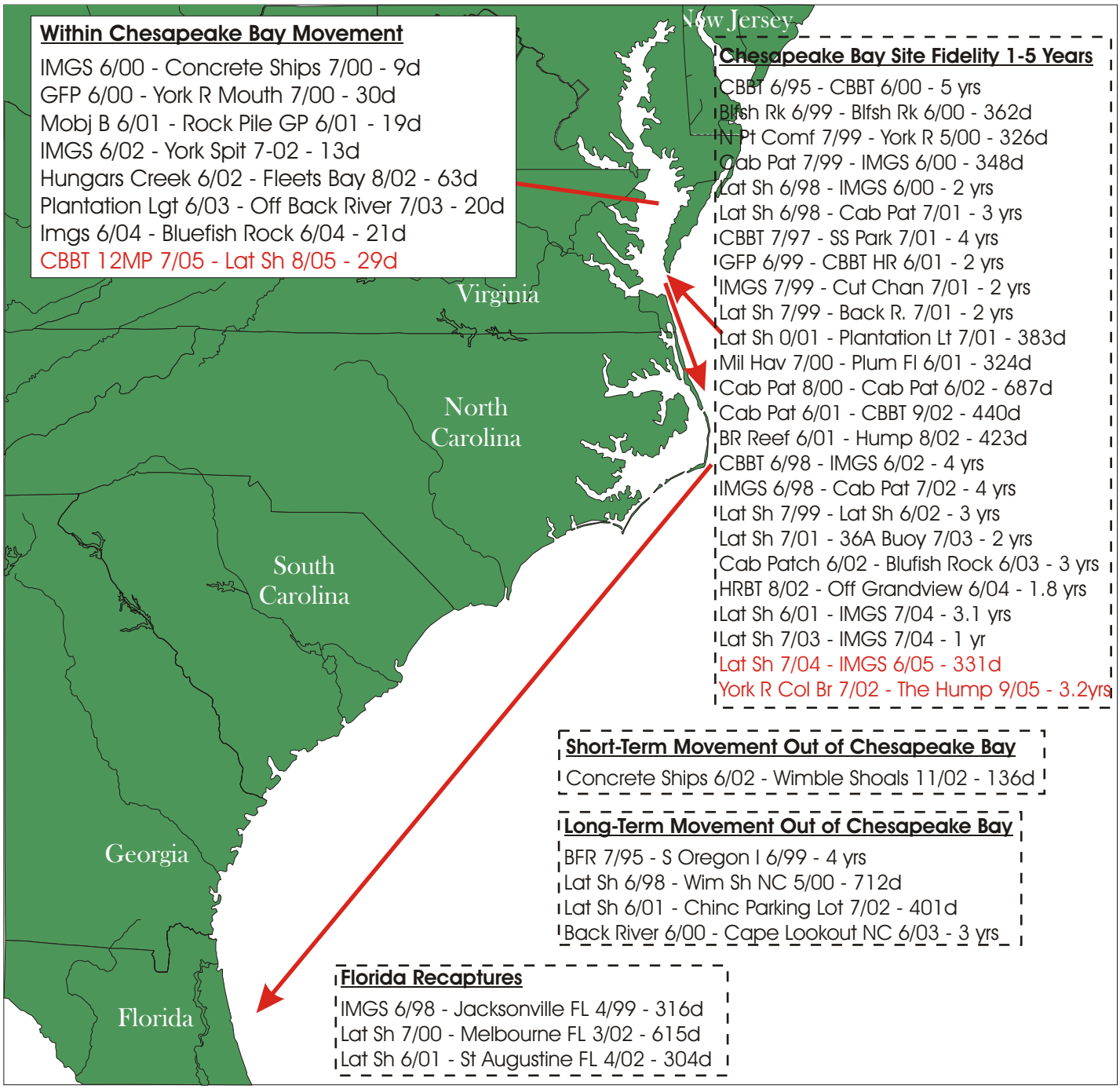


Figure 7. Summer Flounder Site Fidelity Within Years (2001-2005)

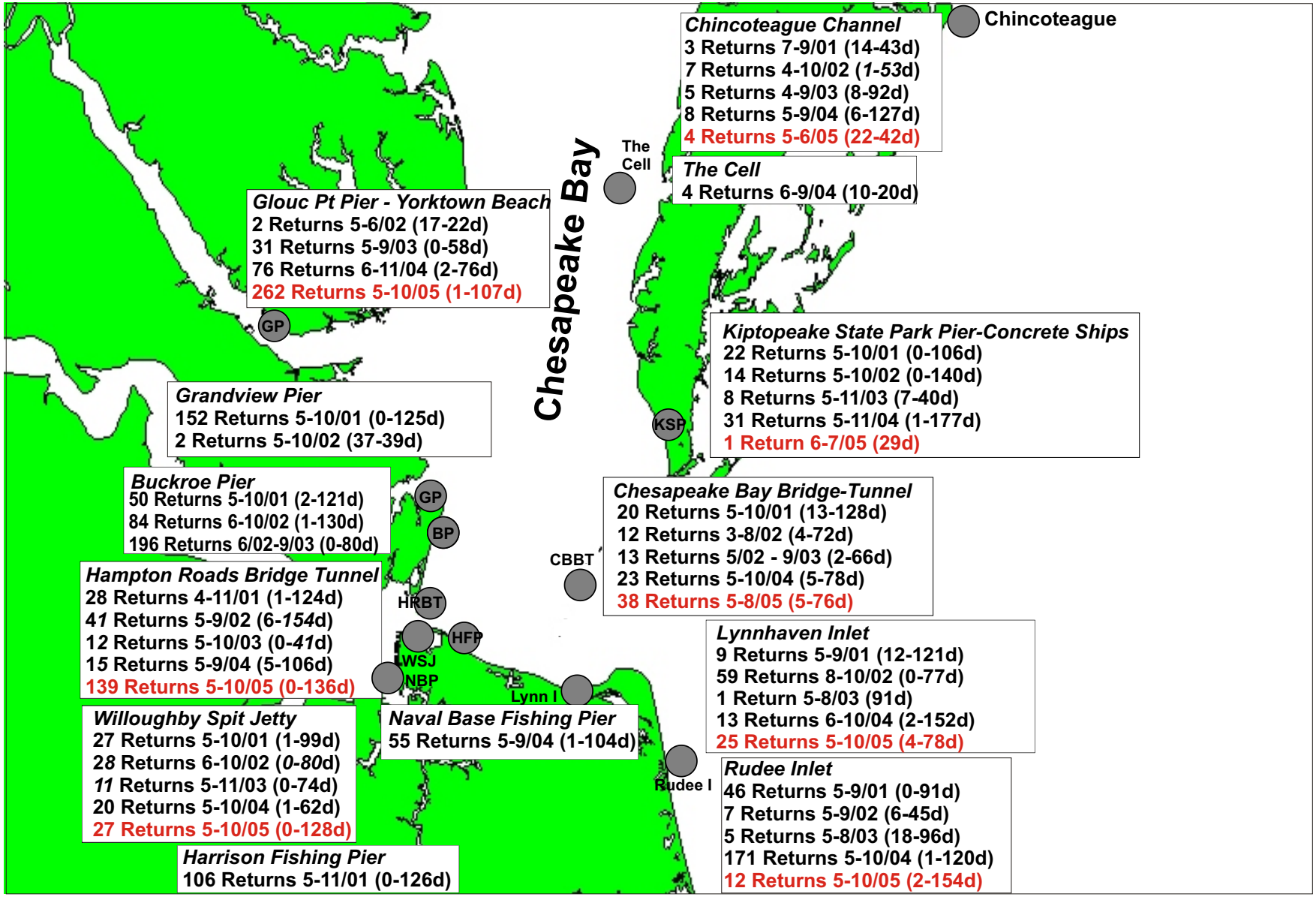


Figure 8a. Gloucester Point Pier 2005
Single Recaptures - Flounder

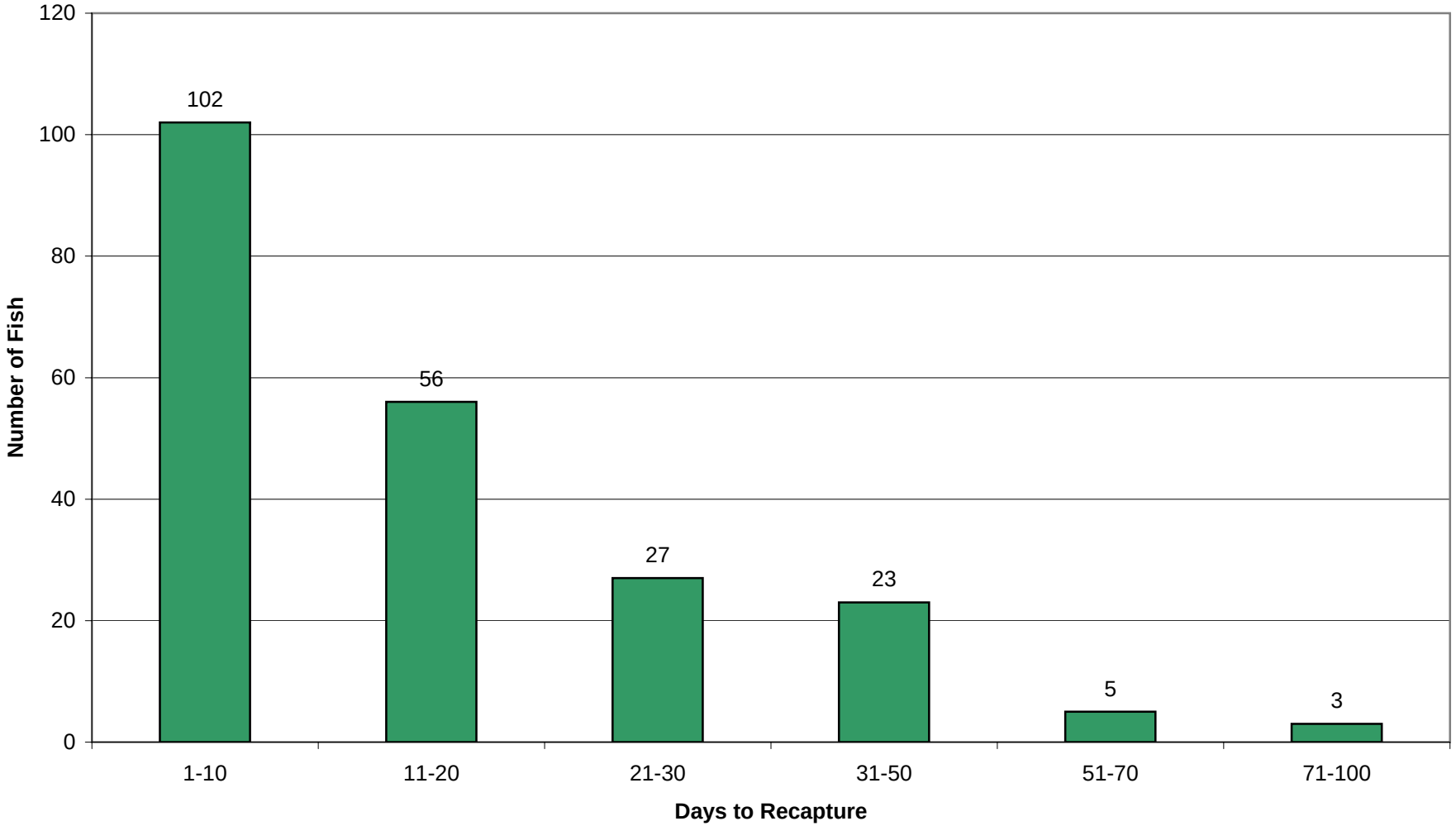


Figure 8b. Gloucester Point Fishing Pier 2005
Multiple Recaptures

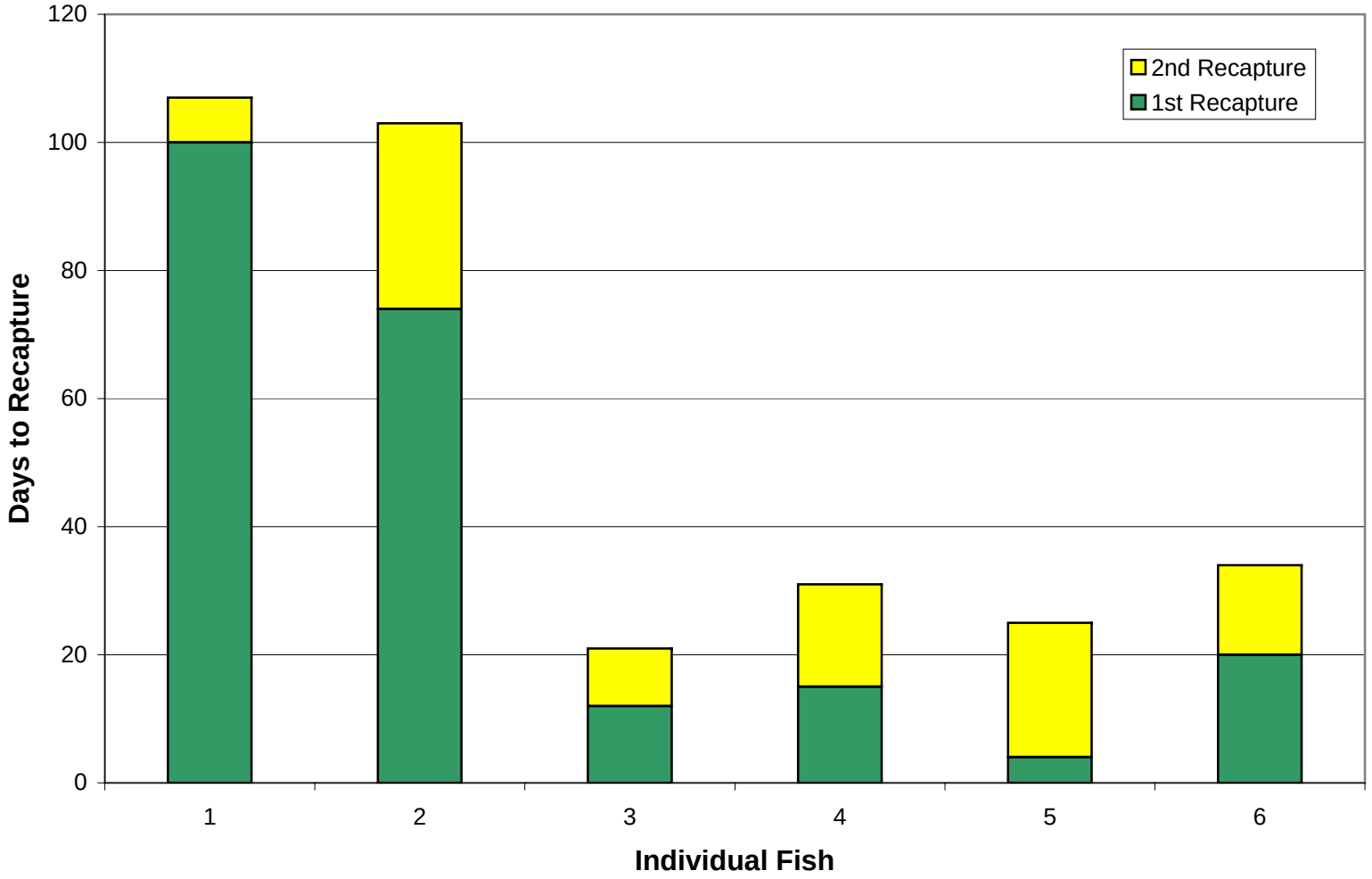


Figure 9a. Hampton Roads Bridge Tunnel 2005
Single Recaptures - Flounder

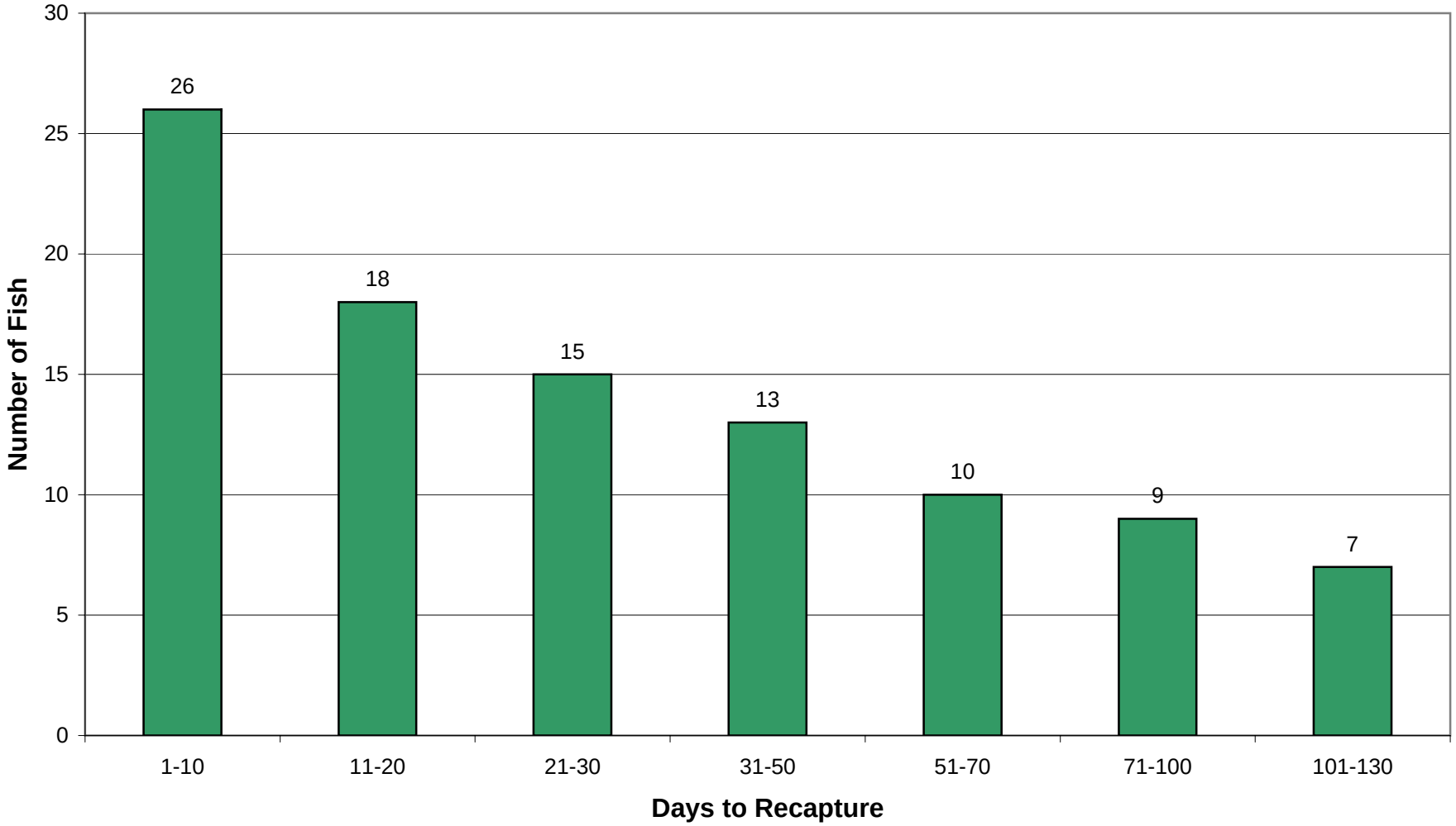


Figure 9b. Hampton Roads Bridge Tunnel 2005
Multiple Recaptures

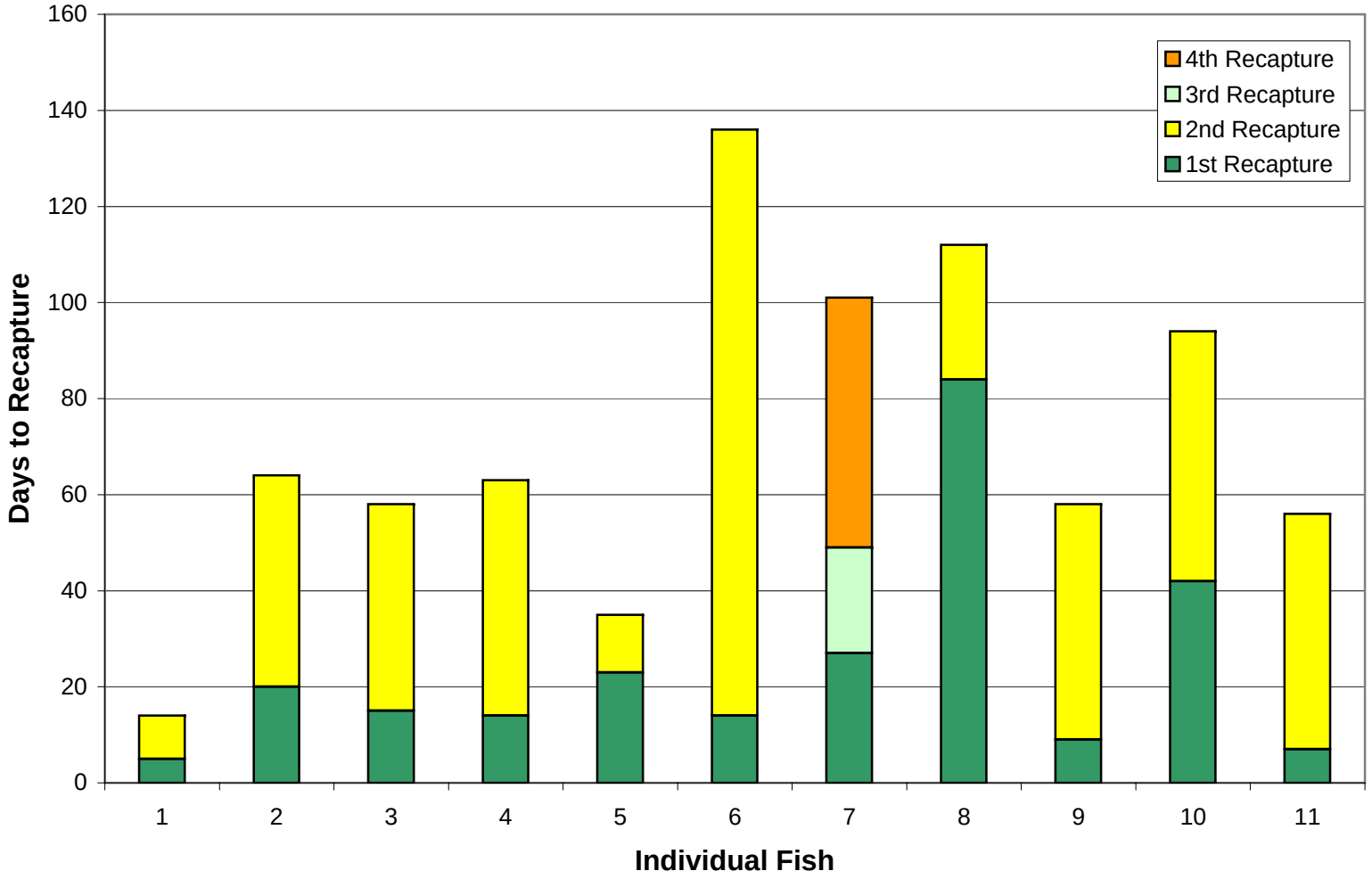


Figure 10. Flounder Long-Term Fidelity (Yr. to Yr.) to Virginia Fishing Areas (2000-2005)

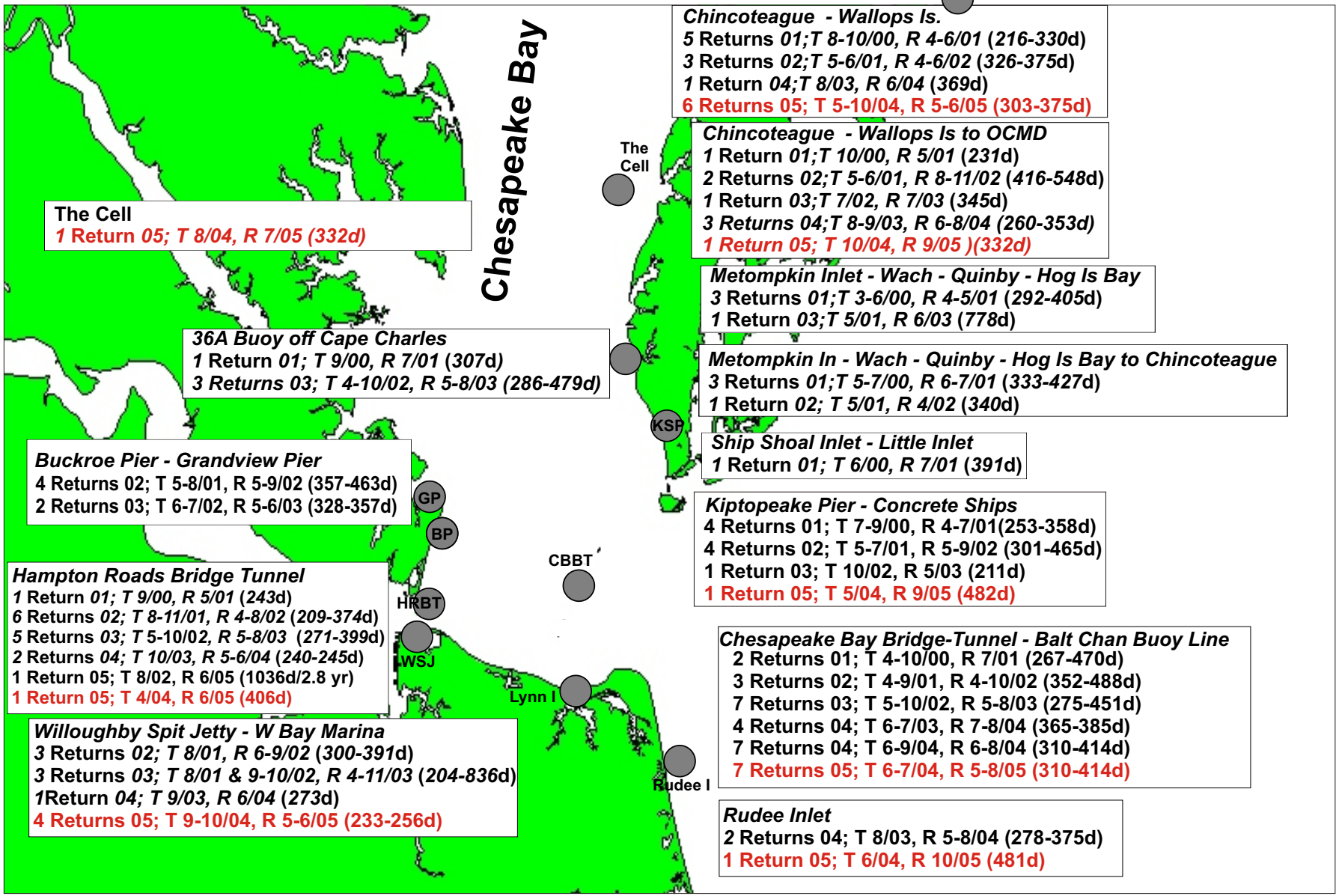


Figure 11. Coastal Movement of Flounder Tagged in Virginia 2000-2005

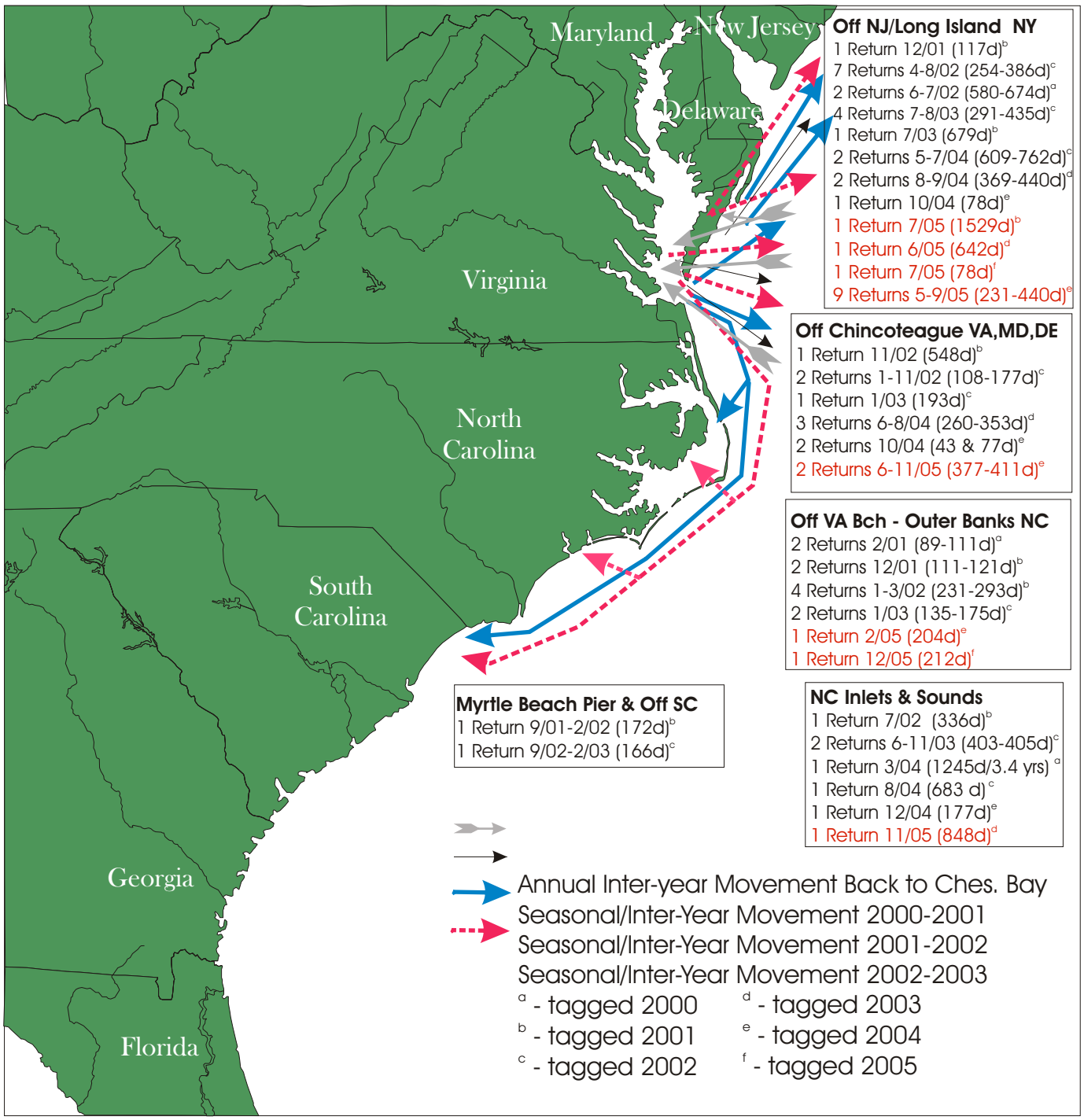


Figure 12. Adult Red Drum Movement NC to VA Waters; Movement VA Adult Drum, Spring - Fall

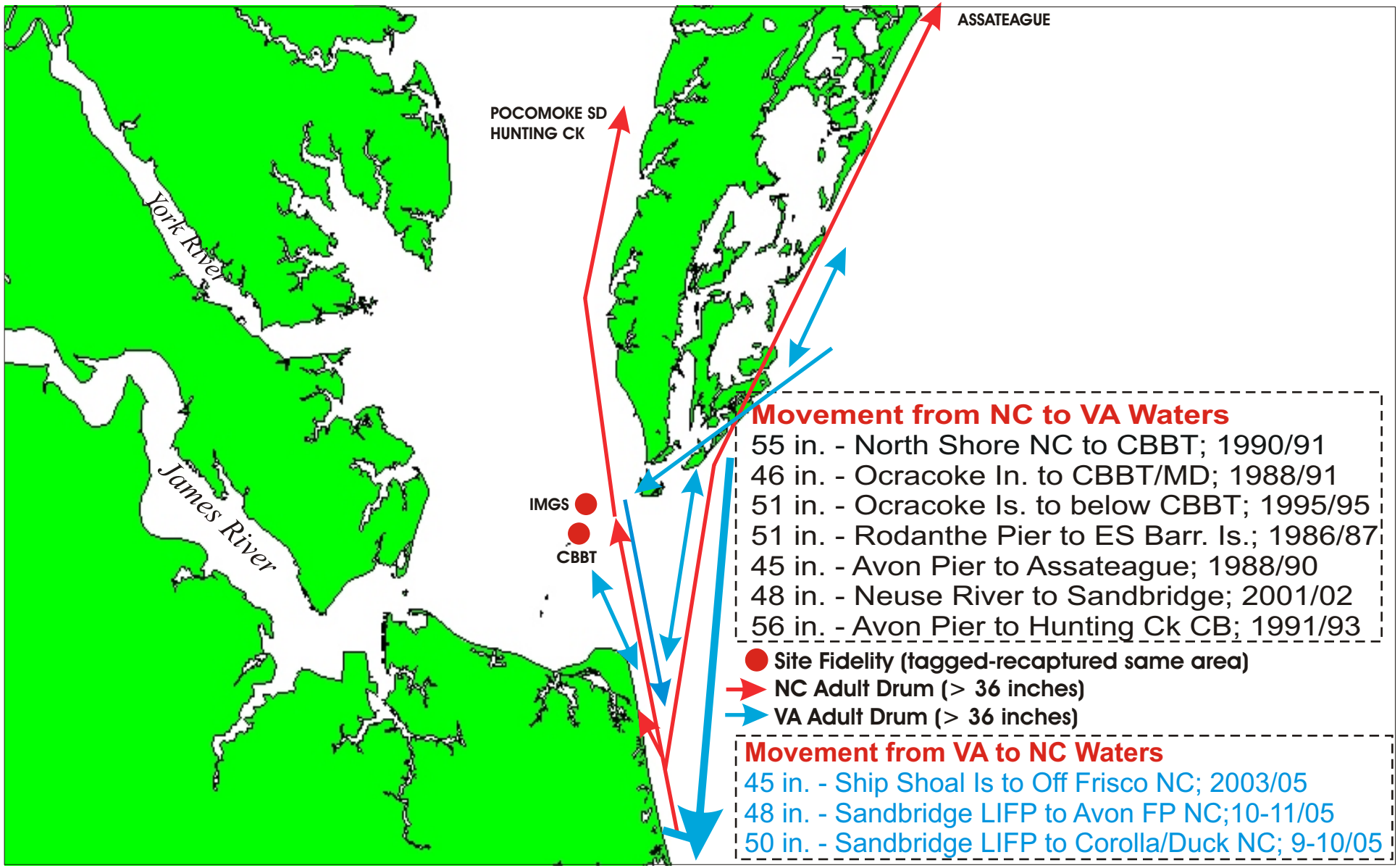


Figure 13. Long Distance Speckled Trout Movement (VA to NC 2004-2005)